

with ten long diverging hairs. The plates of the chitinous ring are deeply incised. The posterior dorsal tubercles each with 45 to 70 round spinnerets. The derm also bears many small glands and spinnerets.

Hab. On branches of *Inga* sp., growing along the banks of the River Mogy-guassú, near the town of Mogy-guassú, State of S. Paulo.

This insect has a peculiar appearance and resembles a berry or seed so closely as to be deceiving.

[To be continued.]

XVII.—*Contributions from the New Mexico Biological Station.*

—X. *Observations on Bees collected at Las Vegas, New Mexico, and in the adjacent Mountains.* II. By T. D. A. COCKERELL*.

Colletes americana, Cresson.

Las Vegas, Aug. 11, at flowers of *Solidago canadensis*, 1 ♀ (*W. Porter*).

Colletes bigeloviæ, Ckll.

Beulah (*W. Porter*).

Colletes gilensis, Ckll.

Las Vegas, July 21, at flowers of *Petalostemon oligophyllus*, 4 ♀ (*Ckll.*); Aug. 1, 3 ♀ (*Porter & Ckll.*); Gallinas River at La Cueva, Aug. 6, 2 ♀ (*Porter & Ckll.*). The joints of the palpi measure as follows in μ :—Maxillary palpi, (1) 200, (2) 110, (3) 140, (4) 130, (5) 110, (6) 110; labial palpi, (1) 170, (2) 150, (3) 140, (4) 160.

Petalostemon oligophyllus is the plant heretofore reported from Las Vegas as *P. caulidus*; I am indebted to Miss A. M. Vail for the correct identification.

Prosapis basalis, Smith.

Beulah, July 28, 1 ♂ (*Ckll.*). New to New Mexico. This and other species of *Prosapis* were taken on moist ground by a stream.

Prosapis mesillæ, Ckll.

Las Vegas, June 19, at flowers of alfalfa, ♀ (*Ckll.*); Aug. 4, ♂ (*W. Porter*).

* The first part of this paper appeared in *Ann. & Mag. Nat. Hist.*, May 1900, p. 401.

Prosapis rudbeckiæ, subsp. *ruidosensis*, Ckll.Beulah, July 28, Aug. 18 (*Ckll.*).*Prosapis tridens*, Ckll.Beulah, July 28, 2 ♂, with face-marks light yellow (*Ckll.*).
New to New Mexico.*Prosapis varifrons*, Cress.Beulah, July 28, 5 ♂ (*Ckll.*); Dailey Cañon, Aug. 10
(*T. D. A. & W. P. Ckll.*). New to New Mexico.*Halictus amicus*, Ckll., var. *a.*

♀. Face narrower than type; possibly a distinct species.

Las Vegas, at flowers of *Gaura coccinea*, June 18 (*Ckll. & Porter*). The *Gaura* is properly a moth-flower, but is more or less visited by bees when it first opens.*Halictus anomalus*, Rob.Las Vegas, at flowers of *Convolvulus arvensis*, June 17, ♀ (*Ckll.*); July 4, ♀ (*Ckll.*); July 29, at flowers of *Verbesina encelioides*, ♀ (*Ckll.*); Aug. 14, at flowers of *Grindelia squarrosa*, ♀ (*Martin D. Ckll.*). New to New Mexico. Robertson says the abdomen of *anomalus* is impunctate, but the punctures can be seen with a compound microscope.This species has only two submarginal cells, and as it has the size and form of *H. perdifficilis*, I wondered whether the Las Vegas specimens might not merely be aberrant examples of that insect. A close examination, however, revealed the following important differences:—

	<i>H. anomalus</i> from Las Vegas (♀).	<i>H. perdifficilis</i> , type from Santa Fé (♀).
1st abdominal segment.	With sparse minute punctures: not tessellate.	Distinctly and strongly tessellate; sparsely punctured.
2nd abdominal segment.	Stronger punctures: not tessellate; anterior and posterior halves punctured alike.	Distinctly transversely lineolate; rather closely punctured on anterior half, practically impunctate on posterior.
Median line of mesothorax.	Not grooved; a mere line.	Strongly grooved.
Mesothorax.	Bluish green.	Brassy green.
Metathorax.	Same colour as rest of thorax.	Dark blue, contrasting.

H. anomalus differs from *H. semicæruleus* in not having

the bluish lustre on the abdomen, in the shorter metathoracic enclosure, &c. *H. semiceruleus*, however, has the first two abdominal segments nearly as in *anomalus*, not as in *perdifficilis*.

Halictus armaticeps, Cresson.

Las Vegas, June 17, at flowers of *Convolvulus arvensis*, ♀ (Ckll.); July 29, at flowers of *Verbesina encelioides*, ♀ (Ckll.); Beulah, May 30, at flowers of *Salix*, ♀ (W. Porter). This is the insect heretofore reported from New Mexico as *H. ligatus*, but Mr. Ashmead believes it is not the true *ligatus* of Say, and I must agree with him, after comparing Say's description.

Halictus bardus, Cresson.

Beulah, May 30, at flowers of *Salix*, ♀ (W. Porter).

Halictus coriaceus, Smith.

Beulah, May 30, at flowers of *Salix*, ♀ (W. Porter).

Halictus Lerouxii, Lep.

Las Vegas Hot Springs, at flowers of *Salix*, ♀ (W. Porter).
New to New Mexico.

Halictus mesillensis (Ckll.), var. *α*.

♀. Head and thorax olive-green. Las Vegas, Aug. 5, at flowers of *Aplopappus spinulosus*, ♀ (Ckll.). This differs from *H. nymphalis* (received from Mr. Robertson) by the distinctly punctured first abdominal segment, the rather smaller size, and the darker, less brightly coloured tegulæ.

The original *mesillensis*, described as a variety of *nymphalis*, has also the punctured first abdominal segment.

Halictus pruinosus, Rob.

Las Vegas, July 5, at flowers of *Verbesina encelioides*, ♀ (S. L. Mize); July 11, at flowers of *Cleome serrulata*, ♀ (Ckll.); July 31, at flowers of *Grindelia*, ♀ (Ckll.).

Halictus ruidosensis, Ckll.

Beulah, July 26, five females (W. Porter).

Halictus sisymbrii, Ckll.

Las Vegas, June 17, at flowers of *Convolvulus arvensis*, ♀ (Ckll.); July 31, at flowers of *Cleome serrulata*, ♀ (Ckll.); July 2, at flowers of *Sidalcea neomexicana*, ♀ (M. Holzman).

Agapostemon texanus, Cresson.

The following records all relate to females:—Romeroville, Aug. 6 (*Porter & Ckll.*); Gallinas River at La Cueva, Aug. 6 (*Porter & Ckll.*); Las Vegas, at flowers of *Gaura coccinea* (*Ckll.*); at flowers of *Asclepias verticillata* (*M. Winters*); June 17, at flowers of *Convolvulus arvensis* (*Ckll.*); July 2, at *Sidalcea neomeicana* (*M. Holzman*); July 5, at *Cleome serrulata* (*N. Stern*); at garden pæony (*W. Porter*); July 8, at *Lycium vulgare* (*W. Porter*); July 9, at *Lepachys columnaris* (*M. Holzman*); July 11, at *Cucurbita fœtidissima* (*N. Stern*); July 12, at marigold (*A. Garlick*).

Panurginus Boylei (*Ckll.*).

Las Vegas, July 26 and 29, at *Verbesina encelioides*, ♂ (*Ckll.*); July 31, at *Grindelia*, ♂ (*Ckll.*); Aug. 3, at *Helianthus annuus*, 2 ♂, one parasitized by a ♀ *Stytrops* (*W. Porter*).

Var. α . ♂. With a yellow line on scape in front. Las Vegas, Aug. 2 (*W. Porter*).

Panurginus pauper, var. *flavotinctus*, *Ckll.*

Las Vegas, Aug. 2, 2 ♂ (*W. Porter*).

Calliopsis coloradensis, Cresson.

Las Vegas, Aug. 2, ♀ (*W. Porter*); Aug. 5, at *Helianthus annuus*. The eyes in life are pale sage-green.

Calliopsis lepidus, Cresson, var. α .

♀. Near *C. rhodophilus*, but face-marks white. ♂ differs from *rhodophilus* by the wholly black scape. The ♀ agrees with Cresson's description of *C. lepidus*, except that the hair on the basal joint of tarsi beneath is barely fulvous; the dog-ear marks on the face are present, whereas in *rhodophilus* they are wanting. I sent a drawing of the Las Vegas *lepidus* to Mr. Fox, who kindly compared it with Cresson's type, and reported: "The face-marks of *Calliopsis lepidus* agree almost exactly with your drawing. The only difference is that the lateral marks are slightly narrower than in the drawing."

Las Vegas, July 24, at flowers of *Convolvulus incanus*, ♀ (*W. Porter*); Aug. 13, flying over the ground close to some *Sphæralcea cuspidata*, 2 ♂, 1 ♀ (*Ckll.*); July 11, 1900, many females at flowers of *Melilotus officinalis* (*W. P. Ckll.*). New to New Mexico.

Perdita zebrata, Cresson.

Gallinas River at La Cueva, Aug. 6 (*W. Porter*).

Var. α . ♂. Small, only 5 mm. long; first abdominal segment entirely black above. Two at flowers of *Cleome serrulata*, Las Vegas, July 19 (*Porter & Ckll.*).

Spinoliella scitula (Cresson).

Las Vegas, July 23, at *Cleome serrulata*, 1 ♀ (*W. Porter*). Mr. Ashmead (*in litt.*) states that the following species, all described as *Calliopsis*, belong to his new genus *Spinoliella*:—*S. scitula* (Cress.), *S. australior* (Ckll.), *S. zebrata* (Cress.), *S. maculata* (Smith), and *S. Edwardsii* (Cress.). To these should apparently be added the following, also described as *Calliopsis*:—*S. cincta* (Cress.), *S. interrupta* (Prov.), *S. quadri-lineata* (Prov.), *S. meliloti* (Ckll.), *S. scutellaris* (Fowler), *S. visaliensis* (Fowler), *S. anthidius* (Fowler).

Melecta miranda, Fox.

Las Vegas, at flowers of *Zinnia grandiflora*, July 27 (*W. Porter*).

Var. α . Smaller, about 9 mm. long. Las Vegas, July 9, on *Sphaeralcea cuspidata*, but not on flowers (*Ckll.*); July 19, at flowers of *Cleome serrulata* (*Ckll.*).

Ashmeadiella buconis (Say).

Las Vegas, July 24 (*W. Porter*); July 29 and Aug. 5, at flowers of *Verbesina encelioides*, ♀ (*Ckll.*).

Ashmeadiella cactorum, Ckll.

♂. Length 5 mm. Las Vegas, Aug. 4, two at flowers of *Convolvulus arvensis* (*W. Porter*).

Melissodes agilis, Cresson.

Las Vegas, July 5 (*N. Stern*); July 25, at flowers of *Helianthus annuus*, 1 ♂ (*W. Porter*); July 31, at *Verbesina encelioides*, 1 ♂ (*Ckll.*); Sapello Cañon, Aug. 31 (*W. Porter*); San Ignacio, Aug. 31 (*W. Porter*).

Var. α . ♂. No yellow spot on mandibles. Las Vegas, July 17, at *Cleome serrulata* (*A. Garlick*); July 26, at *Verbesina encelioides* (*Ckll.*).

Melissodes agilis, var. *aurigena* (Cresson).

The males vary in length from 9 to 10½ mm. *Romero-Ann. & Mag. N. Hist.* Ser. 7. Vol. vii.

ville, Aug. 6 (*Porter & Ckll.*); Las Vegas, July 19, at *Helianthus*, ♂ (*L. Reed*); July 22, at alfalfa and *Helianthus annuus* (*W. Porter*); July 20, at *Aplopappus spinulosus*, ♂ (*W. Porter*); July 26, at *Verbesina encelioides*, ♀ (*Ckll.*); Aug. 3, at *Helianthus annuus*, ♂ ♀ (*W. Porter*).

Melissodes gilensis, Ckll.

Las Vegas, July 20 and 22, at *Cleome serrulata*, ♀ (*W. Porter*); July 24, at *Sidalcea neomexicana*, ♀ (*W. Porter*).

Melissodes grindeliæ, Ckll.

Las Vegas Hot Springs, Aug. 10, at flowers of *Senecio Douglasii* and *Helianthus annuus*, 6 ♂ (*W. Porter*); Las Vegas, July 19, at *Verbena Macdougali*, ♀ (*W. Porter*); July 22, at *Cleome serrulata*, ♀ (*W. Porter*); July 22, at *Lepachys columnaris* and *L. tayetes*, ♀ (*W. Porter*); Aug. 5, at *Verbesina encelioides*, ♂ (*Ckll.*).

Melissodes pallidicincta, Ckll.

The following records all relate to females:—Las Vegas, June 22 and 23, also 29, at *Malvastrum dissectum* (*Ckll.*); July 1, 2, and 5, at *Sidalcea neomexicana* (*M. Holzman*); July 3, at *Trifolium repens* (*N. Stern*); July 4 and 11, at *Cleome serrulata* (*N. Stern, Ckll.*); July 6, at *Verbena Macdougali* (*Ckll., M. Winters*); July 6, at *Sphæralcea lobata* (*W. Porter*); July 10 and 24, at *Asclepias verticillata* (*N. Stern, W. Porter*); July 24, at an umbellifer (*W. Porter*); Aug. 1, at *Lycium vulgare* (*W. Porter*); Romeroville, Aug. 6 (*Porter & Ckll.*).

Melissodes tristis, Ckll.

Las Vegas, July 20, at *Cleome serrulata*, 1 ♂. This is very probably the male of *M. pallidicincta*; but if so, it is curious that only one was caught, while the females abounded.

Melissodes ruidosensis, Ckll.

Beulah, July, 1 ♂ (*W. Porter*); Las Vegas, Aug. 2, 1 ♂ (*Porter & Ckll.*).

Xenoglossa pruinosa (Say).

Las Vegas, July 13 and 15, at flowers of *Cucurbita fetidissima* (*M. Winters, M. Holzman, W. H. Rishel*); July 21, males asleep in flowers of *Cucurbita fetidissima*, at 7.45 p.m. (*Ckll.*); July 22, at flowers of *Asclepias speciosa*, 1 ♀ (*W. Porter*).

Anthophora maculifrons, Cresson.

The male abdomen ends in four spines. Las Vegas, July 18, at *Sphaeralcea lobata*, 1 ♀ (*W. Porter*); July 19, at *Lycium vulgare*, ♂ (*W. Porter*); Aug. 9 to 12, at *Grindelia squarrosa*, 5 ♂ (*S. L. Mize* & *W. Porter*); Aug. 9, at *Verbena Macdougali*, 4 ♂, 2 ♀ (*W. Porter*).

Anthophora (Amegilla) cardui, Ckll.

Las Vegas, July 11, at *Cleome serrulata*, ♂ (*Ckll.*); Aug. 11, at *Petalostemon oligophyllus*, ♂ (*W. Porter*); Las Vegas Hot Springs, Aug. 10, at *Verbena Macdougali*, ♂ (*W. Porter*).

Anthophora (Amegilla) cleomis, Ckll.

The ♂ abdomen ends in two blunt spines. Las Vegas, July 6, at *Sphaeralcea lobata*, ♂ (*W. Porter*); July 9, at *Sidalcea neomexicana*, ♂ (*M. Holzman*); July 19, at *Lycium vulgare*, 1 ♀, 3 ♂ (*W. Porter*); July 20, at *Verbena Macdougali*, ♂ (*W. Porter*); July 23, at *Salvia lanceolata*, ♂ (*W. Porter*); Aug. 1, at *Cleome serrulata*, ♀ (*W. Porter*); Rociada, Aug. 20, ♀ (*W. Porter*).

Anthophora (Amegilla) montana, Cresson.

Las Vegas, July 8, at *Lycium vulgare*, ♀ (*W. Porter*); July 10, at *Cleome serrulata*, ♀ (*M. Winters*); July 14 and 19, at *Cleome serrulata*, ♀ (*A. Garlick*).

Anthophora (Amegilla) urbana, var. *alamosana* (Ckll.).

In the male the thoracic hair has no black intermixed, and the clypeus and lateral face-marks are white. Las Vegas, June 19, at alfalfa, ♂ (*Ckll.*); July 8, at *Lycium vulgare*, ♀ (*W. Porter*).

Clisodon terminulis (Cresson).

Beulah, July (*W. Porter*); Aug. 18, at flowers of *Polemonium* (*W. Porter*); Harvey's Ranch, Aug. 22 (*W. Porter*); Sapello Cañon, Aug. 31 (*W. Porter*). A species of the Canadian zone.

Apis mellifera, var. *ligustica*, Spinola.

Las Vegas, July, at *Cleome serrulata*, alfalfa, &c.

Numerous critical species, some of them evidently undescribed, are left over for subsequent treatment.

East Las Vegas, New Mexico, U.S.A.,
Nov. 2, 1900.

BIBLIOGRAPHICAL NOTICES.

Recent Foraminifera. A Descriptive Catalogue of Specimens dredged by the U.S. Fish Commission Steamer 'Albatross.' By JAMES M. FLINT, M.D., U.S.N., &c., Smithsonian Institution, U.S. National Museum. From the Report of the U.S. National Museum for 1897, pp. 249-349, with 80 plates. Svo. Washington: Government Printing Office, 1899.

THE author, who is the "Honorary Curator, Division of Medicine, U.S. National Museum," proves himself to be a genuine naturalist by his able treatment of these Foraminifera, their specific identification and the relative value of their varieties. For some years he has been collecting from the bottom material brought up by the 'Albatross' at about 225 stations, chiefly in the North Atlantic, with others from the Gulf of Mexico and Caribbean Sea, and a few from the Pacific.

The abundance and excellence of the illustrations, which are wonderfully arranged with artistic neatness and scientific exactness, present an important feature in opening the volume. "A uniform enlargement of about 15 diameters has been maintained in the figures . . . useful to mark distinctly the relative size of the objects."

In the Museum the specimens are described as being mounted with an arrangement admirably suited for the convenience of microscopists and others. It is thus described at pages 251 and 252:—

"The exhibition series has been mounted expressly for public display. The individuals of each species are attached in various attitudes to the bottom of the shallow cavity of a concave blackened disk of brass. For security each disk is provided with a removable fenestrated brass cap having a top of thin glass. These disks are arranged in concentric rows upon a large circular metal plate, which occupies the place of the stage of an ordinary microscope. The circular plate is given both a rotary and a too-and-fro movement by means of a friction-roller and a rack-and-pinion, so that all the mounts may be successively brought under the microscope. The specimens thus arranged are enclosed in a box having a glass top, through which the objective of a microscope projects." Each of the illustrative plates contains from one to seven of these mounts very carefully photographed.

The concise and yet satisfactory definitions of families, sub-families, genera, and 231 species (pages 258-264) are ably designed to assist the student in learning the history of these beautiful and truly interesting protozoans.

The structure and development of these Microzoa are briefly described (pages 252-256), and at page 257 details are given of the methods of sorting and arranging the specimens and more especially of making and mounting *sections* of such as are required.

The author truly says that "the literature of the subject is very large," and adds that "with Carpenter's 'Introduction to the Study of Foraminifera,' Brady's 'Report on the Foraminifera collected by H.M.S. Challenger,' and Sherborn's 'Index to the Genera and Species of Foraminifera' [published by the Smithsonian Institution, 1895-96], the student will be able to begin work in an intelligent manner and to find references to all that has been published on this subject up to the most recent date."

T. R. JONES.

A Treatise on Zoology. Edited by E. RAY LANKESTER, M.A., F.R.S.
Part II. *Porifera and Cœlentera.* LONDON: A. & C. Black, 1900.

THE present volume (the second in order of the complete series), dealing with the Porifera and Cœlentera, is in all respects equal to that reviewed in these pages a short time since.

The Editor contributes an Introduction on the cœlomic system, wherein he contrasts the distinctions between the Proto- and Metazoa. This is a most important and valuable contribution. How much depends on a right understanding of the cœlom will be readily appreciated after a perusal of these pages. "Cœlom," says Prof. Lankester, "is not a term to be used for any and every body-cavity other than the gut (as some eminent writers seem to suppose), but definitely designates a morphological element of high importance."

For the terms Enterocœla and Cœlomata, Prof. Lankester proposes to substitute Cœlentera and Cœlomocœla. Possible objections to this proposition are anticipated and answered, and probably most will be induced to adopt his suggestion.

The remarkable displacement of the cœlom by an irregularly distended system of blood-spaces, "a hæmocœl" (which, Prof. Lankester has elsewhere shown, takes place in the Arthropoda and Mollusca), is lucidly described in this Introduction. For the swelling of the peripheral portions of the hæmal system Prof. Lankester suggests the term "phlœbedesis." The lacunar blood-holding spaces resulting from it form the "hæmocœl."

This introductory chapter is compressed into some 37 pp. and may well be described as a kind of literary pemmican. It is the most lucid and succinct account that has yet appeared.

Prof. Minchin deals with the Sponges; and this part may well be described, without exaggeration, as a masterly contribution, without an equal in any language. It will be invaluable as well to the student of other groups as to the specialist in the Porifera alone. With regard to the derivation of the Sponges, Prof. Minchin has definitely pronounced in favour of a Choanoflagellate ancestry.

Dr. Fowler deals with the Hydrozoa. These he breaks up into two groups, Hydromedusæ and Scyphomedusæ. The last he regards as more nearly allied to the Anthozoa, and suggests the desirability of uniting these two under the class name Scyphozoa. The fresh-water Medusæ and the Graptolithidæ are treated of as appendices

to the Hydromedusæ. A satisfactory classification of the Antho- and Leptomedusæ is not, it is insisted, at present possible.

The section on the Anthozoa has been written by Mr. G. C. Bourne; and certainly no one else is better qualified for this task. His account of the Ctenophora is interesting. The supposed Planarian affinities of Ctenoplana and Cœloplana Mr. Bourne views with disfavour. Again, Mr. Bourne joins issue with Dr. Willey concerning the claim of the Ctenoplana and Cœloplana to be regarded as primitive forms. We have no evidence, Mr. Bourne contends, to show whether they are primitive or derived forms.

The illustrations are numerous and well executed. A large number are original. Some of these are drawn by the authors themselves. Those by Prof. Minchin and Mr. Bourne are especially good. Many of those illustrating the external forms of sponges are by Mr. P. J. Bazand, and are really excellent.

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

February 21st, 1900.—J. J. H. Teall, Esq., M.A., F.R.S.,
President, in the Chair.

The following communication was read:—

‘Further Evidence of the Skeleton of *Eurycarpus Oweni*.’
By Prof. H. G. Seeley, F.R.S., F.L.S., V.P.G.S.

The original specimen from which this species was named was obtained from the Sneewberg (South Africa) in 1876, and after being doubtfully referred to *Dicynodon* was described and figured in 1889. It was presented to the British Museum by Mr. Thomas Bain, through Sir Henry Barkly. The skull was found with the complete specimen, and a short memorandum of its characters, with a sketch of the skeleton, including the skull, was made by Mr. T. Bain and has been preserved in the British Museum. Half of the counterpart of the slab was presented to the Author by the Rev. C. Murray, and by means of it complete casts of part of the skeleton have been obtained.

From Mr. Bain’s sketch the Author is able to give some account of the skull, including its dimensions. From the material mentioned above, he gives new facts with regard to the vertebral column, the ribs, the shoulder-girdle, the fore-limb, the hind-limb, and the armour, which was present upon the limbs and the fore part of the body.

The locality from which the animal was obtained had already